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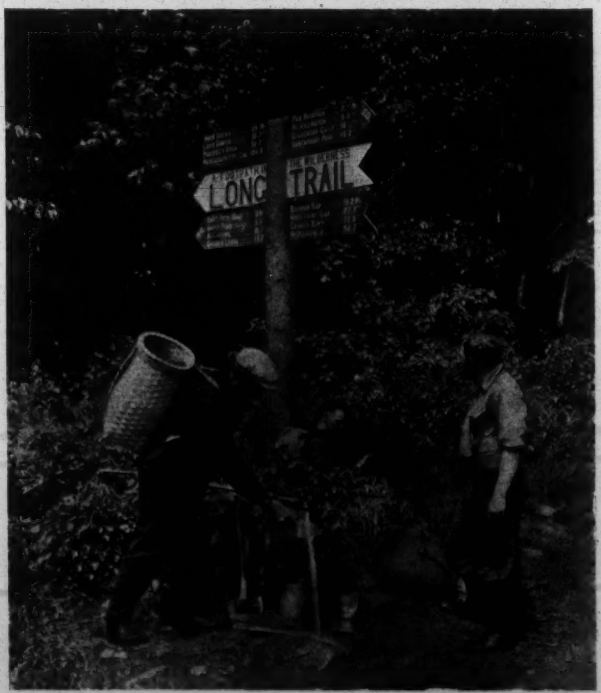
Contents for Week of January 4, 1932. Vol. X. No. 25.

1. The Fiji Islands, Where the New Year Really Begins.
2. Trans-Asian Expedition Reaches Kashgar, Chinese City of Mosques.
3. Nickel, an Ally in the War on Rust.
4. Vermont Completes Long Trail over Green Mountains.
5. Carcassonne, Medieval Dream Town of Southern France.



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VERMONT HAS SIGNBOARDS FOR WALKERS

The Green Mountain Club has recently completed "The Long Trail" from the Massachusetts boundary, north to the Canadian line. The trail is well marked with signs such as these, and there are frequent shelter houses along the way with cooking facilities (See Bulletin No. 4).

HOW TEACHERS MAY OBTAIN THE BULLETINS

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The Fiji Islands, Where the New Year Really Begins

WHO gets the New Year first?

The International Date Line, by agreement the imaginary time boundary which marks the birthplace of each new day and year, pursues a winding course through the Pacific. It begins its southward journey from the North Pole along the 180th meridian, but veers to the east in order to keep Siberia within the same date line. Then it swings obliquely to the west again to do the same favor for the Aleutian Islands, part of Alaska. When it finally straightens out its course on the 180th meridian it travels down beyond the Equator before making another detour, this time slightly to the east around the Fijis, the Tonga Islands, and Chatham Island. Then it returns to the 180th meridian for a bee-line run to the South Pole.

Main Island Half as Large as Massachusetts

The bulge of the date line around the Fijis and Tongas gives the sparsely settled Tongas the right to celebrate the New Year first, but Fiji's claim to being the first inhabited land of any importance to reach 1932 is legitimate in every way. It does not depend on a bend in the date line. The 180th meridian passes directly through the island group. Astronomically, as well as practically, it becomes exactly midnight in Fiji when it becomes noon in Greenwich; and Fiji's New Year starts with the ticking of the first second after noon, December 31, in London.

Viti Levu, main island of the Fiji group, on which Suva, the Fiji capital, is situated, fails in many ways to meet the popular conception of what a South Sea island should be. It is neither a tiny, low-lying atoll, nor a jagged volcanic peak or two rising from the tropic seas. It is half as large as the State of Massachusetts, and is the greatest land mass within an equal distance of Honolulu in the great sweep of ocean all the way from the Alaskan Peninsula around to the coast of Mexico.

Viti Levu is more than 4,000 square miles in extent, and is almost exactly the size of Hawaii, largest island of the Hawaiian group. It is more than 75 miles long and 50 miles broad and contains a mountain range with peaks 4,000 to 5,000 feet high. It is among the few Pacific islands with a river 50 miles long, which is navigable by small boats.

"Most Healthful Tropical Land"

The Fijis differ from most other tropical islands in another way. They have been called "the most healthful tropical land in the world." Malaria is unknown and white women and children thrive. The temperature seldom tops 90 degrees Fahrenheit or drops below 63. So pleasant is it most of the year that light weight, white clothing has not the vogue that it has elsewhere in the Tropics, and garments like those worn in America and Europe are to be seen at all seasons.

Suva is to the South Pacific what Honolulu is to the north. It is the chief cable station of the Canada-Australia cable and a regular port of call for mail steamers from Vancouver to Sydney. Suva is also within easy reach of New Zealand and Australia and has weekly steamers to and from those dominions.

It is an attractive little tropical city on a good harbor about 2 miles square. The chief business street of concrete buildings extends along the water front, and

© Photograph by Morden-Clark Asiatic Expedition

AWNINGS SUSPENDED ON POLES SHADE THE BROADWAY OF KASHGAR

This center of desert trade in Sinkiang (Chinese Turkestan) was caravan's end for Marco Polo after a year among the mountains and wastes of the Pamir region. He was charmed by its refreshing gardens and vineyards and "fine estates," but he criticized the table manners of its people. The Trans-Asian Expedition, with which the National Geographic Society is cooperating, recently visited Kashgar (See Bulletin No. 2).

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Trans-Asian Expedition Reaches Kashgar, Chinese City of Mosques

A CHINESE city of 80,000 people with only a handful of them Chinese; houses of mud; a Mohammedan mosque at every turn; streets of dust stirred by laden donkeys and camels—such is Kashgar, one of the most isolated important towns of the world, according to a communication to the National Georgraphic Society from Maynard Owen Williams, its representative with the Citroën-Haardt Trans-Asian Expedition.

The Expedition traveled through the gorges and over the passes of the Himalayas for nine weeks to reach this remote city in Sinkiang (Chinese Turkestan), and a letter dispatched from Kashgar by mail runner on September 25 was nearly two and a half months in transit to America.

One of Asia's Most Colorful Markets

The city is inhabited mostly by Turkis who are Mohammedans. A busy building campaign for mosques is in progress, Mr. Williams reports, while already the Moslem houses of worship number many score. Only one prominent Chinese temple is to be found.

The government has been secure for many years; but so light is the Chinese hand that many of the inhabitants spend their entire lives in ignorance of the Chinese language.

Kashgar is set down in an oasis of fine, fertile loess soil. The surrounding fields are irrigated and bear abundant crops of grains and fruits. In the suburbs of the town are long lanes shaded by rows of willows and plane trees, beside which gurgle canals of coffee-colored water. Along these lanes plod donkeys laden with produce for the city market, which is one of the most colorful in Asia.

Shopping in Kashgar, Mr. Williams writes, means faring forth with pockets stuffed with Chinese "plasters," large rectangles of thick green and black paper money. Each bill is worth about a third of an American dollar. Luscious watermelons may be purchased for the equivalent of a few American cents.

They Smash Bicycles!

Sinkiang, of which Kashgar is the westernmost large city, is the "Far West" of China, a province of some 550,000 square miles, equal in area to two states the size of Texas. Mountains and deserts shut it off almost entirely from the outside world. It has been only slightly touched by the rapid development which has enabled neighboring countries, such as India and Russian Turkestan, to outgrow some of their primitive standards. It is a country without any industry in the modern sense, without any higher native schools—a country where harmless bicycles are likely to be smashed by infuriated mobs, which are proud of having killed these "messengers of Hades."

For more than 2,000 years it was a playground for Asiatic imperialistic powers. Mongol emperors, Chinese and native potentates, and even generals of Alexander the Great's army, conquered its fertile oases.

The Citroën-Haardt Trans-Asian Expedition will travel by tractor motor car

the residential sections climb the slopes behind. Practically all the dwellings are bungalows, white or cream-colored, and usually with red roofs. Every bungalow has its broad verandas on at least two sides, and in many cases they extend completely around the house. The veranda, paradoxically, is the heart of the Suvan household.

White Population Small

In spite of its remoteness, Suva can furnish many of the comforts to which Europeans and Americans are used. It has a waterworks, electric lights, and telephones. There are no street cars, but motor cars may be hired for drives around the town and into the near-by country. Viti Levu has only a limited mileage of motor roadways, however.

The white population of Suva numbers slightly more than 1,500, and there are several times as many Fijians, and East Indians in the city, in addition to a sprinkling of Chinese and natives of other Pacific islands.

The Fiji Islands constitute a British crown colony. They have been under the British flag since 1874. Prior to the middle of the nineteenth century the Fijians were probably the most bloodthirsty cannibals in existence. They have completely reformed within the last generation or two, and now practically all of the islanders profess Christianity.

Note: The Fijis and other fascinating islands of the South Seas are described and illustrated in several recent articles in the *National Geographic Magazine*, which may be consulted in your school or public library. See "A Modern Saga of the Seas," December, 1931; "Our Conquest of the Pacific," October, 1928; "Around the World in the *Islander*," February, 1928; "Map Changing Medicine," February, 1922; and "The Dream Ship," January, 1921.

Bulletin No. 1, January 4, 1932.

© *Capt. Harry Pidgeon*

A FLOATING MARKET AT SUVA, CAPITAL OF THE FIJI ISLANDS

Delicious fruits are grown on the Fijis—the dawa, which resembles a dark blue plum, the banana, the pineapple, etc. On the rolling hills which encircle the harbor some 1,500 Europeans make their homes. Among them are 133 members of the National Geographic Society who will have their New Year's celebration many hours ahead of residents of the States.

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Nickel: an Ally in the War on Rust

INDUSTRY is mobilizing a number of metals and alloys in the chemists' war on the waste of rust. Chromium, copper, brass and other copper alloys, and aluminum are substances whose industrial use, in part at least, have been augmented by the fight on rust. One of the major allies on the non-rust battlefront is nickel.

One of nickel's chief industrial attributes is its "willingness" to mix with other metals, although it also is used in its pure state.

Popular Because It Is a Good "Mixer"

It readily associates with several hundred metals and metallic alloys, toughening the mixtures, increasing their heat resistance, and improving their non-corrosive qualities. It also is used as a whitener of dark metals.

Nickel and products of nickel machinery are seldom out of range of man's fingertips. In modern homes they may be found in many articles ranging from kitchen sinks to door knobs, including table tops, refrigerator handles and hinges, cook pots, stove trimmings, electric iron, percolator, toaster and waffle iron heating elements and plating, radio tube grids, safety razors, plumbing fixtures, cabinet shelves and the metal that is hidden beneath bathtub enamel. Silver plated ware usually is nickel alloy covered with a film of silver.

In city streets huge nickel alloy "thumb tacks" flank pedestrian lanes, nickel alloy building towers and trimmings gleam overhead, while underground telephone wires "wear" small nickel alloy loading coils to make telephone conversation clearer and to speed transmission. About one-twelfth of the gleaming metal tower of the Chrysler Building and also the metallic ribbons adorning the walls of the lofty Empire State Building are nickel.

Resists Salt Water Corrosion

Because of its toughening effect on fellow metals, nickel helps make travel safer. Frames and engine parts of many automobiles contain nickel. Once all the bright parts of automobiles were nickel plated. Chromium has taken the place of nickel plate, but nickel is often hidden beneath chromium plating. Many modern steamships are equipped with nickel alloy hardware and fittings because the metal resists salt water corrosion and in the "small boat market" one now may buy pleasure boats with nickel alloy hulls that need no paint to preserve them.

Commuters depend upon the tough nickel alloys that go into the manufacture of locomotive and car parts, and often into the molding of tracks, when they board the 8:15, while nickel alloys have also played an important part in improving aviation metal.

White gold is white because nickel (15 per cent) is mixed with ordinary gold. A lesser amount of nickel makes flesh-colored gold while a still lesser amount makes green gold. German "silver" is a mixture of brass whitened with nickel. Nickel's toughness has made it useful in the manufacture of steam shovel arms, rock crushers, machine tools, marine shafting, die blocks and mining tools. Flat keys that do not twist in the door lock often contain nickel.

"Nickel" Is One-Fourth Nickel

Nickel's non-corrosive qualities make it useful in the dye and chemical industries and in salt factories. Its clean appearance makes it popular among manufacturers of restaurant, bakery and dairy equipment. The American "nickel" is one-fourth nickel. The other three-fourths is copper. Twenty-three countries use pure nickel coinage.

No one knows how long nickel has been in use. It is well known that the ancients shaped swords from meteorites which contained the metal. Because the meteorites originated in the heavens, warriors believed the swords had some sort of supernatural quality. During the early part of the last century deposits were found in New Caledonia but no one knew what to do with the metal. Attempts to part it from its metallic neighbors were so difficult that metallurgists called it "Old Nick," a synonym for stubborn. From "Old Nick" came the name nickel.

Nickel was discovered in Canada in 1853 when a surveyor's compass was deflected, but because so little was known about the metal, the find remained only a mention in a surveyor's notebook until 1883 when a railroad was put through the Sudbury region. To-day 90 per cent of the world's supply is mined near the original Canadian area of discovery.

Note: See also: "This Giant That Is New York," *National Geographic Magazine*, November, 1930; "Gentlemen Adventurers of the Air," November. 1929; and "Canada from the Air," October, 1926. For the background of the automobile industry see "The Automobile Industry," October, 1923.

from Kashgar to Urumchi, the capital of Chinese Turkestan, and thence through the vast deserts of Mongolia and Inner Mongolia to Peiping, former capital of China.

Note: See also: "The Citroën-Haardt Trans-Asian Expedition Reaches Kashmir," *National Geographic Magazine*, October, 1931; and "The Trans-Asian Expedition Starts," June, 1931. For additional reading about the strange customs and interesting people of remote Sinkiang consult: "On the World's Highest Plateaus," March, 1931; "Desert Roads to Turkestan," June, 1929; "The World's Greatest Overland Explorer," November, 1928; "By Coolie and Caravan across Central Asia," October, 1927. See also "Trans-Asian Expedition First To Reach Gilgit on Wheels," GEOGRAPHIC NEWS BULLETINS, week of October 19, 1931.

Bulletin No. 2, January 4, 1932.

© *Photograph by Owen Lattimore*

ODDLY ENOUGH, THE CHIEF FRUIT OF SINKIANG DESERTS IS THE WATERMELON!

Grown in enormous numbers and bewildering variety on newly irrigated desert land, these melons, which extract from the soil salts injurious to other vegetation, acquire amazing lusciousness. They can be cut into strips and dried for winter use, the heat of the sun being so intense that they are dehydrated without a trace of rot.

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Vermont Completes Long Trail through Green Mountains

THE sport of walking is certain to have new disciples since the Long Trail over the crests of the Green Mountains of Vermont has been completed. This 250-mile footpath, stretching from the Massachusetts boundary to the Canadian border, has been a 21-year dream of the Green Mountain Club, many of whose members live outside the State, who spend their summers wandering through Vermont's wooded highlands. Now completely marked and graded, the Long Trail is ready for lovers of the sport of walking everywhere.

"Vermont is a State of mountains, and its people are mountain people," writes Herbert Corey, in a communication to the National Geographic Society. "Ethan Allan once said—and if Vermont could have a patron saint the Revolutionary hero would comfortably fill that niche—that 'the gods of the valley are not the gods of the hills.'

Every Town Has Its Mountain

"Not a single town in Vermont is without its eminence. There are approximately 900 peaks whose summits are 2,000 feet or more above sea level. The northeast corner, an area perhaps 50 miles by 50, is in effect a wilderness. Bears roam there and deer, and landlocked salmon are to be caught in lakes rarely seen by man.

"Elsewhere the mountains seem more hospitable. The tallest, Mount Mansfield, 4,393 feet high, can be reached by automobile over good though steep roads and all are accessible to hikers.

"'We should build a trail for hikers along the summit of the Green Mountains from Massachusetts to Canada,' said the men of the Green Mountain Club in 1910.

Volunteer and Unpaid Labor

"Therefore they built it. They had little money and there were only a few members of the club; but in the intervening 21 years they have completed by volunteer and unpaid labor a trail good enough for even a so-so hiker, with cabins and rests at intervals, and along a skyline, over Camels Hump and Mansfield, from which the views bring rapture to a mountain lover.

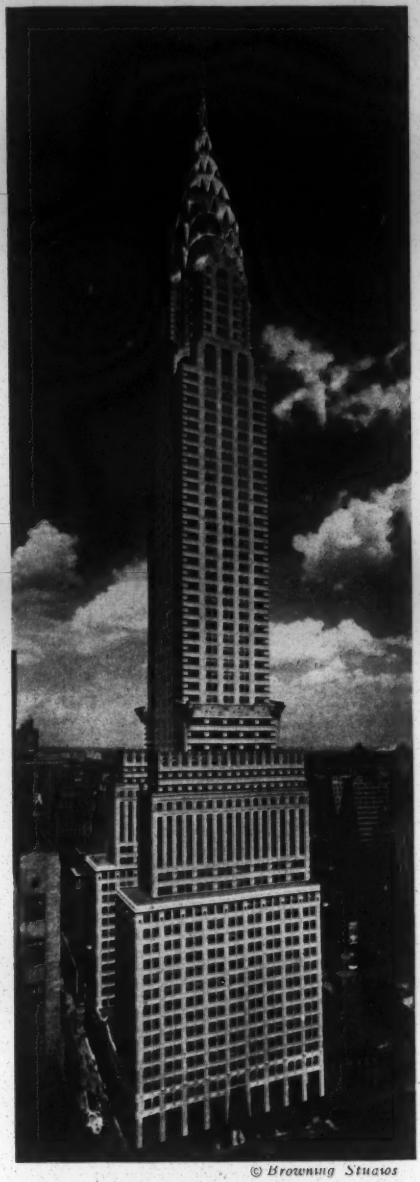
"It has not, it seems, been regarded as extraordinary by the rest of the State. One gathers that in Vermont one meets a difficulty, subdues it, and goes on to the next in the day's work.

"This is a State of lakes, too; for there are approximately 400—from Lake Champlain, 118 miles long, between the Green Mountains and the Adirondacks, to mere potholes gleaming in hill fastnesses; and of little rapid rivers, which slow down here and there into placid reaches where the hungry trout leap at dawn.

Scenes for an Artist

"As one rides through the State, the remains of old water mills are to be seen—moss-grown, picturesque, a warped wheel clattering in a ruined race. Now they are an invitation to the artist. With them are weathered gray houses clustered about by forgotten orchards and dim roads that seem to lead nowhere through tangled woods.

"One of these days, one fears, there will be humming turbines where the old mills are now falling into decay. Factories will replace the sagging rooftrees of



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NICKEL HELPS TO MAKE THE CHRYSLER BUILDING GLISTEN

About one-twelfth of the external metal work of the tower of this 77-story skyscraper, one of the world's tallest, is nickel. Nickel also adds strength to its structural steel skeleton, and safety to its 32 high-speed elevators.

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Carcassonne, Medieval Dream Town of Southern France

THE sentinel rock of Gibraltar and the Suez Canal give England control of the Mediterranean Sea. But large ships will soon have another entrance to the Mediterranean from the Atlantic if the plans of France to construct a deep-water canal from Bordeaux to a point near Narbonne, approximately the course followed by the present shallow Canal du Midi, are carried out. The new waterway would be 280 miles long, and its cost is estimated at $160,000,000.

The historic Canal du Midi dates from 1681, and winds through some of the most beautiful parts of France. No section of the canal is lovelier than that which runs under the grim ramparts and lofty towers of Carcassonne, medieval dream city of southern France.

The New Town and the Old

Carcassonne straddles the River Aude about 56 miles southeast of Toulouse. Travelers arriving at the railway station in the so-called new town on the west bank of the Aude scan the panorama for a city of antiques, but it is not found on that side of the river.

The new town is only about 300 years older than early American towns. Some of the inhabitants of the old town across the river revolted against the King of France and were driven out of the old town walls. They were allowed to settle on the site of the new town. That was in 1247.

A beautiful, shaded parkway near the railroad station introduces Carcassonne, but a few steps beyond the traveler is hemmed in between walls of new stone and brick buildings rising sheer from the sidewalks. The streets run at right angles, forming solid blocks, the monotony of which is relieved only by a few squares and small parks and a wide, shaded boulevard.

Place Carnot Is Center of Everything

The Place Carnot is a combined market place, loafing place, and meeting place in Carcassonne. The traveler passes through quiet streets of the city when suddenly his eyes are dazzled with an array of color as he enters the Square. Before the city has awakened shaggy donkeys drawing cartloads of produce from near-by farms wearily tread the city streets toward the Square. Beside them stalk shawled women, in apron-covered, voluminous skirts, and sun-seared men of the soil.

By the time the city awakens, the green, red, yellow, purple and white vegetables, fruits, and flowers are carefully placed on stands under gay, striped awnings. In an hour the city's housewives are boisterously bargaining and gesticulating with the merchants. Peddlers of candy and tinware add to the din of the Square, while mere curiosity seekers and loafers laugh and chatter.

Old Bridge Approaches Old Walled Town

Near-by, guides show St. Vincent's Church, a fourteenth-century structure, and St. Michael's, which is slightly older. These are among the oldest landmarks of the new city. Within a stone's throw of these relics the streets which they border intersect with boulevards where well-to-do Carcassonnians promenade in Paris fashions, ride their favorite mounts, and drive their shiny automobiles.

Cross the River Aude and ahead of you loom the encircling walls of a story-book town. Enter the gates, and you are on a site which was occupied by a settlement somewhere back in the mists of history. You may cross the Aude by a modern bridge or, with the ancient ramparts ahead of you, you may prefer the old thirteenth-century span. The frowning gray walls of the old town were im-

the old houses. Whether we like it or not, this is an age of progress, and these hillside rills and spring-fed mountain lakes will ultimately be harnessed.

"For thirteen years Vermont was an independent republic, making its own laws, maintaining its own army, coining its own money. During this period it was not only in rebellion against England, but was carrying on a lively private fight of its own with the State of New York and the Continental Congress.

"A historian records that 'Vermont was never anything but free. Never a crown colony, never yielding allegiance to any province, State, or kingdom.' When she was admitted as the fourteenth State to the American Union, after the Revolution had been won by her loyal aid, it was upon her own terms."

Note: Vermont is more fully described in "The Green Mountain State," *National Geographic Magazine*, March, 1927. This is one of a series of State articles published in the Magazine. Other recent State stories are: "Smoke over Alabama," December, 1931; "New Hampshire, the Granite State," September, 1931; "Illinois, Crossroads of the Continent," May, 1931; "Louisiana, Land of Perpetual Romance," April, 1930, and "Florida, the Fountain of Youth," January, 1930.

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WINTER HIKERS THAWING OUT AT A REST-HOUSE

These outdoor enthusiasts are resting and warming themselves before the cheerful fireplace of the Long Trail Lodge, in Sherburne Pass, near Mount Pico, northeast of Rutland, Vermont. On the stone mantle above the log fire rests an old-fashioned, long-handled cornpopper, and a shoulder yoke for carrying water buckets.

pregnable when battering rams were the "high explosives" of attackers. There are two walls, with about 28 feet between them. One glance at these ramparts convinces the traveler that one historian was right when he said that only famine or treason within the walls could cause the surrender of the town.

The walls form an irregular oval about the old town and have only four openings. One opening in each wall is large enough to admit horses and wheeled vehicles, and each is guarded by a series of turrets and towers. The other openings are mere holes in the walls, wide enough for only one man to squeeze through.

Inside, narrow, cobbled streets breathe an atmosphere of many centuries ago. There is the venerable St. Nazaire Cathedral with stained glass windows depicting Bible scenes, and the Chateau, where high walls once echoed with the gay revelry of Carcassonne feudal lords. These old structures look down upon streets almost deserted, for the life of Carcassonne to-day is in the new town.

Note: Southern France, a land of beauty and romance, is described and pictured in "Across the Midi in a Canoe," *National Geographic Magazine*, August, 1927; "Carnival Days on the Riviera," October, 1926; and "Discovering the Oldest Statues in the World," August, 1924.

Bulletin No. 5, January 4, 1932.

© *Photograph by Flandrin*

CARCASSONNE, LIKE A DREAM CITY OF MEDIEVAL ROMANCE

The ghostly pageant of long-maned barbarians, of Frankish battle-axes and Moorish banners, of mailed Crusaders, English yeomen, and French kings, has come and gone, leaving behind a fantastic, romantic jumble of ramparts, towers, bastions, battlements, and barbicans. In 1849-79 the fortifications of the citadel were restored by the famous architect Viollet-le-Duc, who considered them perfect and picturesque examples of defensive works of the 11th-13th centuries.